



Missouri Department of Natural Resources

Total Maximum Daily Load Information Sheet

Troublesome Creek

Waterbody Segment at a Glance:

County: Marion
Nearby Cities: Hester
Length of impairment: 3.5 miles
Pollutant: Manganese
Source: Natural



Troublesome Creek is being added to the 2002 303(d) list for Manganese and being changed from the 1998 303(d) listing of Sediment to Habitat Loss. See Habitat Information Sheet.

TMDL Priority Ranking: Low

Description of the Problem

Beneficial uses of Troublesome Creek

- Livestock and Wildlife Watering
- Protection of Warm Water Aquatic Life and Human Health associated with Fish Consumption
- Drinking Water Supply

Use that is impaired

- Protection of Warm Water Aquatic Life

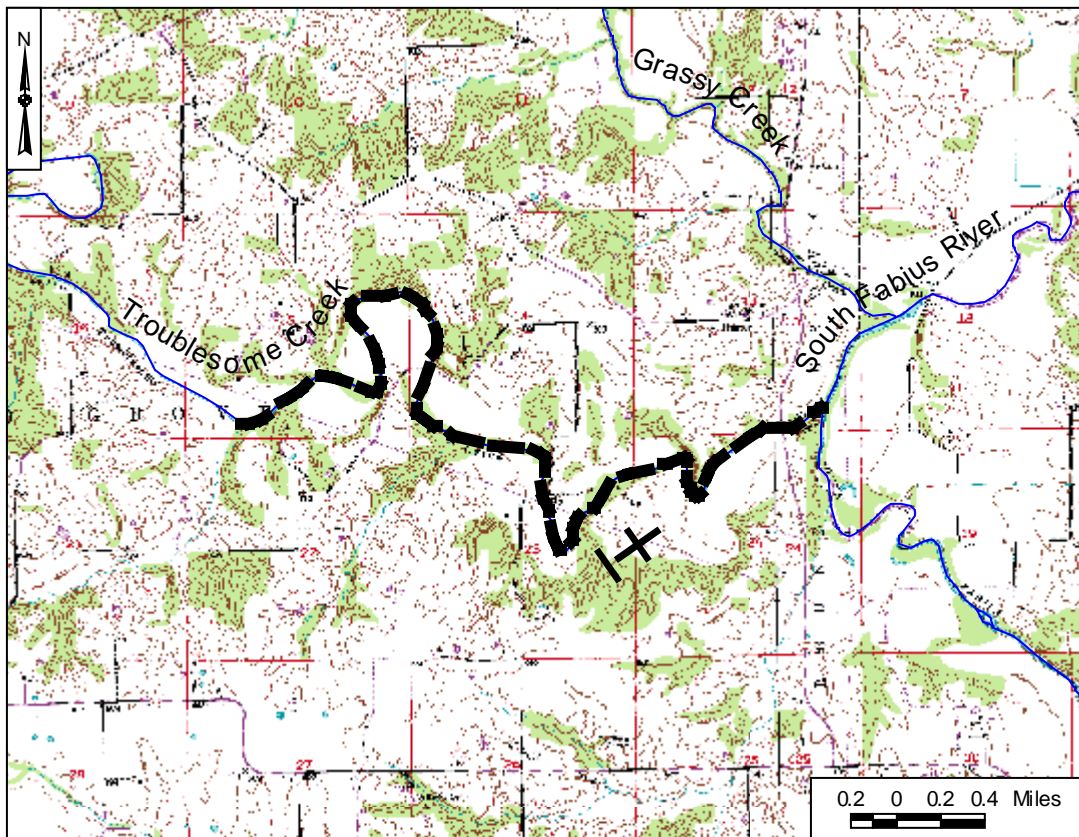
Standards that apply

Missouri Water Quality Standards in 10 CSR 20-7.031 Table A give 50 µg/L as the maximum amount of manganese allowed for Drinking Water Supplies. This is an aesthetic standard that seeks to protect a water supply against possible taste, odor and laundry staining problems caused by excessive amounts of manganese. Exceedence of this standard is not a threat to human health.

There has yet to be any monitoring of Troublesome Creek for dissolved manganese. Monitoring of other north Missouri streams shows average dissolved manganese levels of 136 µg/L to 293 µg/L. Based on this data, Troublesome Creek is believed also to have elevated levels of dissolved manganese. There are no known significant man-made sources of manganese in this watershed. The source of the manganese is believed to be natural weathering and erosion of earth materials (soils and subsoils) in this watershed.

Manganese does not present any human health hazards, but is responsible for offensive tastes and appearances in drinking water. It can react with tannins in coffee, tea and in other beverages, producing a black sludge, which affects both taste and appearance. Manganese causes a brownish-black staining of laundry, porcelain, dishes, utensils and glassware. Soaps and detergents do not remove the stains, and use of chlorine bleach can intensify the stains. Manganese can build up in pipelines, pressure tanks, water heaters and water softeners and cause equipment problems and energy cost increases due to mineral deposits.

Map Showing Impaired Segment of Troublesome Creek, Marion County



--- Impaired Segment

→ Direction of Flow

For more information call or write:

Missouri Department of Natural Resources

Water Pollution Control Program

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